



## A MILLING TOOL HOLDER WITH DIFFERENTIAL SCREW

### Background of the Invention

### Background and Summary of the Invention

Tool holders for milling tools commonly employ a tool holding component  
5 having a shank, and a driven spindle having an opening for receiving the shank. Various ways are known in the prior art for tightly joining the spindle to the shank of the tool holder. However, most commonly used apparatus still tend to permit the tool to chatter from the tool movement such as when using a hydraulic pull system with a retention hub. Further such apparatus sometimes permit tool  
10 deflection which results in a poorly finished workpiece.

The broad purpose of the present invention is to provide an improved tool holder combination comprising an elongated tool holder having a threaded bore, one end for supporting a milling tool and its opposite end having a tapered shank. The wide end of the shank merges with an annular seat on the tool  
15 holder. The narrow end of the shank merges with a generally cylindrical split collar having two axial slots that permit the split collar to be enlarged in diameter.

The spindle has a frusto-conical opening for receiving the tapered shank, and an inner bore which extends between the frusto-conical opening and a narrow threaded bore at the rear end of the spindle.

20 A differential screw is installed between the threaded bore of the shank and the threaded bore of the spindle, and then rotated by inserting a wrench through the spindle bore. The differential screw has threads formed in one direction on the shank end, and threads formed in the opposite direction on the

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